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EXAMINER	
GUARINO, RAHEL	
ART UNIT	PAPER NUMBER
2611	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/593,974	SAKAMOTO ET AL.	
	Examiner	Art Unit	
	RAHEL GUARINO	2611	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *02 June 2010*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-12* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3,7,8 and 10-12* is/are rejected.

7)☒ Claim(s) *4-6 and 9* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. This office action is in response to communication filed on 6/2/2010.

Claims 1-11 have been amended, claim 12 has been added.

Response to Arguments

Application arguments

a) This is, with the technique disclosed in Ishii, a channel to be used for estimating communication quality is selected based on a comparison between an elapsed time when the mobile station receives last user data and a predetermined time determined according to a moving speed of the mobile station. Therefore, Ishii only discloses comparing the elapsed time and the predetermined time, and, thus, failed to disclose estimating the speed of a “change propagation path condition." as recited by claim 1.

In fact, the only reference to a "speed" anywhere throughout the above-cited portions of Ishii is at col. 9, lines 31-32, where Ishii discloses determining the predetermined time based on a "moving speed of the mobile station 2." However, "determining a predetermined time" based on a "moving speed" of a mobile station is not the same as "estimating the speed of a change in a propagation path condition," as recited by claim 1. Ishii does not mention estimating the speed of a change in anything. Rather, Ishii simply notes that the predetermined time is determined based on a moving

speed of a mobile station.

b) In contrast, Ishii does not disclose that the 'quality estimating section 27 changes a method of estimating a communication quality of a received signal, based on" information output from the communication path estimating section 25". In that, in FIG. 3 Ishii, no signal line is disclosed from block 25 to block 27, and block 27 does not perform processing based on the result of block 25. Furthermore, both FIG. 3 and the specification (col. 7, 11. 58) of Ishii disclose that the user data detecting sections 26, and not the quality estimating section 27, use information output from the communication path estimating section 25. Therefore, the Applicants submit that the Office Action's allegations are not supported by the disclosure of Ishii.

c) Furthermore, Ishii's statement that the amount of delay depends on "path timing" does not indicate that different methods are used to estimate communication quality, rather this simply indicates that the amount of delay may change.

Examiner answer

a) Applicant specification discloses “estimating change propagation path condition” is determined based amongst other parameters “moving speed of a mobile station”. Therefore, Ishii discloses estimating the communication path condition (25),

based on the moving speed of a mobile station at predetermined interval and selecting modulation level. Furthermore, Ishii shows similar circuitry as claimed in the claims.

For example:

Re claim 1 Ishii discloses a communication apparatus comprising (fig.2):

a propagation path condition estimation *section (communication path estimation; 25*); a communication quality estimation section *(quality estimation section; 27)*, a transmission section *(Tx;29)* a reception section *(Rx;23)* and a demodulation section that demodulates the data *(col. 7 lines 60-64).*

Re claims 2,7,10, 11, Ishii discloses "a propagation path condition estimation *section (communication path estimation; 25*); a communication quality estimation section *(quality estimation section; 27)*, a transmission section *(Tx; 29)* a reception section *(Rx; 23)".*

In the same field of endeavor, however, Takano discloses a threshold setting section *(threshold control; 15c)*; from a plurality of modulation schemes (*64 QAM, 16QAM, QPSK)* select a modulation scheme *(modulation-coding mode; 17);* a transmission section *(19)* and reception section *(13).*

2. Applicant's arguments have been fully considered but they are not persuasive.

b) Ishii discloses receiving a signal received at the antenna (21) *(duplex (22) that includes transmission (29)/reception (23)).*The received signal is converted into a baseband signal and is inputted into the channel selecting section 24, which serves the

communication path quality estimation, the quality estimating section 27, the communication path estimating section 25. The channel selecting section 24 makes a selection depending on the communication state as to which of the common pilot channel and the dedicated control channel is to be used for quality estimation of a communication path, and notifies the quality estimating section 27 of selection information indicative of which of the channels is to be used (col. 7 lines 47 to col. 8 lines 3).

3. Applicant's arguments have been fully considered but they are not persuasive.

c) Examiner disagrees. In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., "*different methods*") are not recited in the rejected claims. Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

4. Applicant's arguments have been fully considered but they are not persuasive.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> ((e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 1,12 are rejected under 35 U.S.C. 102(e) as being anticipated by Ishii et al. US 7,363,057

Re claim 1, Ishii discloses a communication apparatus comprising (fig.2):

a propagation path condition estimation section that estimates speed of a change (*based on the moving speed of the mobile station for a predetermined time; see fig.6 and col. 9 lines 14-30)* in a propagation path condition (*col. 7 lines 51-60)*;

a communication quality estimation section *(quality estimation section; 27)* that changes a method of estimating the communication quality of a received signal *(col. 7 lines* 51-56), based on the estimated speed of the change in the propagation path condition (*fig.4 shows the quality estimation section; col. 8 lines 8-45. The received signal is delayed (delay devices) depending on the path timing (for ex: predetermined time of the moving speed of the mobile station) and inputted into the despreaders 272-1 to 272-k (where K=numbers of multipaths)* and estimates the communication quality *(col. 8 lines 1-8)*;

a transmission section *(Tx;29)* that transmits the estimated communication quality estimated to a communicating party *(base station)(the estimated quality signal is combined with signal combining section (280 and is transmitted using transmitter (29) to the base station; col. 8 lines 45-51)* ;

a reception section *(Rx;23)* that receives data modulated in a modulation scheme determined by the communicating party based on the communication quality *(base stati*on; *the base station (fig.5) determines modulation and coding (17) based on the received signal (quality information) from the mobile station. The base station transmits (19) the resulting transmission information to the mobile station; col. 8 lines 59 to col. 9 lines 8 and col. 9 lines 40-45);* and a demodulation section that demodulates the data *(col. 7 lines 60-64).*

Re claim 12, the communication apparatus according to claim 1, wherein either a fading pitch, moving speed of a mobile station, delay profile, or fluctuation period of receiving signal power is used as a parameter indicating the estimated speed of the change in the propagation path condition (*based on the moving speed of the mobile station for a predetermined time; col. 9 lines 14-30)*.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ishii et al. US 7,363,057 in view of Takano et al. US 7,308,015

Re claim 3, the communication apparatus according to claim 1 does not teach making makes a longer length of a term for averaging the communication quality when the estimated speed of the change in the propagation path condition is fast, and makes another length of another the term for averaging the communication quality shorter than the longer length when the estimated speed of the change in the propagation path condition is slower than the fast estimated speed of the change in the propagation path condition, and averages information of the communication quality for the longer length and the shorter length to estimate the communication quality

However, Takano teaches making a longer length of a term for averaging the communication quality when the estimated speed of the change in the propagation path condition is fast (*col.10 lines 26-32),* and makes another length of another the term for averaging the communication quality shorter than the longer length when the estimated speed of the change in the propagation path condition is slower than the fast estimated speed of the change in the propagation path condition (*col. 10 lines 19-25 and abstract*), and averages information of the communication quality for the longer length (*col.10 lines 26-32)* and the shorter length to estimate the communication quality *(col. 10 lines 19-25).*

Therefore, taking the combined teaching of Ishii and Takano as a whole would have been rendered obvious to one skilled in the art to modify Ishii to change a length of a term for averaging the communication quality when the change in propagation path condition is fast longer than the length of the term for averaging the communication quality when the change in propagation path condition is slow, and averages the information of the communication quality to estimate for the benefit of selecting a base station among base stations having the best reception quality (col. 8 lines 56-62, Takano)

9. Claims 2,7,8,10,11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ishii et al. US 7,363,057 in view of Takano et al. US 6,985,752

Re claim 2, Ishii discloses a communication apparatus comprising (fig.3):

a propagation path condition estimation section *(communication path estimation section;25)* that estimates a speed of a change (*based on the moving speed of the mobile station for a predetermined time; see fig.6 and col. 9 lines 14-30)* in a propagation path condition (*col. 7 lines 51-60)*;

a communication quality estimation section *(quality estimation section; 27)* that changes a method of estimating a communication quality of a received signal *(col. 7 lines 64 to col. 8 lines 3)*, based on the estimated speed of the change in the propagation path condition, (*fig.4 shows the quality estimation section; col. 8 lines 8-45. The received signal is delayed (delay devices) depending on the path timing (for ex:*

predetermined time of the moving speed of the mobile station) and inputted into the despreaders 272-1 to 272-k (where K=numbers of multipaths) and estimates the communication quality *(col. 8 lines 1-8)*; does not teach a threshold setting section that sets a criterion for selecting, from a plurality of modulation schemes, select a modulation scheme for use in communication with a communicating party based on estimated of the speed of the change in the propagation path condition*;* a modulation scheme selection section that selects the modulation scheme from the estimated communication quality and the criterion; and a transmission section that transmits information of the selected modulation scheme to the communicating party.

In the same field of endeavor, however, Takano discloses a threshold setting section *(15c)* that sets a criterion *(col. 10 lines 48-57)* for selecting, from a plurality of modulation schemes (*64 QAM, 16QAM, QPSK)* select a modulation scheme *(modulation-coding mode selection; 15)* for use in communication with a communicating party based on estimated of the speed of the change in the propagation path condition *(col. 9 lines 11-18);* a modulation scheme selection (*modulation and coding unit (17))* section that selects the modulation scheme from the estimated communication quality and the criterion *(col. 8 lines 63 to col. 9 lines 1-18)*; and a transmission section *(19)* that transmits information of the selected modulation scheme to the communicating party *(col. 9. lines 19-26).*

Therefore, taking the combined teaching of Ishii and Takano as a whole would have been rendered obvious to one skilled in the art to modify Ishii to implement Takano's threshold setting section that sets a criterion to select a modulation scheme

for use in communication with a communicating party from a plurality of modulation schemes based on information of the speed of the change in the propagation path condition; a modulation scheme selection section that selects a modulation scheme from the communication quality by the criterion set by the threshold setting section for the benefit of selecting modulation and coding mode at an optimal transmission rate (col.5 lines 1-5, Takano).

Re claim 7, Ishii discloses a communication apparatus comprising (fig.3):

a reception section *(Rx;15)* that receives information of a speed of a change in a propagation path condition(*col. 7 lines 51-60)*, the speed of the change in the propagation path condition estimated by a communicating party *(the estimated quality signal is combined with signal combining section (280 and is transmitted using transmitter (29) to the base station receiver ; col. 8 lines 45-51)*; does not explicitly teach a threshold setting section that sets a criterion for selecting, from a plurality of modulation schemes, select a modulation scheme for use in communication with a communicating party based on estimated of the speed of the change in the propagation path condition*;* a modulation scheme selection section that selects the modulation scheme from the estimated communication quality and the criterion; and a transmission section that transmits the modulated data by a radio signal.

In the same field of endeavor, however, Takano discloses a threshold setting section *(15c)* that sets a criterion *(col. 10 lines 48-57)* for selecting, from a plurality of modulation schemes (*64 QAM, 16QAM, QPSK),* a modulation scheme *(modulation-coding mode; 15)* of a signal to be transmitted to the communicating party based on

information of the speed of the change in the propagation path condition *(col. 9 lines 11-18);* a modulation scheme selection (*modulation and coding unit (15))* section that selects the modulation scheme based on the criterion *(col. 9 lines 9-18)* and reception quality of a signal received by communicating party *(col. 8 lines 63 to col. 9 lines 1-10)* ; and an adaptive modulation section *(17)* that modulates data in the selected modulation scheme *(col. 8 lines 63 to col. 9 lines 1-10)*; and a transmission section *(19)* that transmits the modulated data by a radio signal *(col. 9. lines 19-26).*

Therefore, taking the combined teaching of Ishii and Takano as a whole would have been rendered obvious to one skilled in the art to modify Ishii to implement Takano's threshold setting section that sets a criterion for selecting, from a plurality of modulation schemes to select a modulation scheme for use in communication with a communicating party from a plurality of modulation schemes based on information of the speed of the change in the propagation path condition; a modulation scheme selection section that selects a modulation scheme from the communication quality by the criterion set by the threshold setting section for the benefit of selecting modulation and coding mode at an optimal transmission rate (col.5 lines 1-5, Takano).

Re claim 8, the modified invention as claimed in claim 2, wherein the threshold setting section *(15c)* sets the criterion so that the modulation scheme is harder to be switched in a threshold when the speed of the change in the propagation path condition is fast than in a threshold when the speed of the change in the propagation path condition is slow (col.11 lines 1-18, Takano).

Re claim 10, Ishii discloses a communication method comprising (fig.3):

Estimating *(communication path estimation section; 25)* that estimates a speed of a change (*based on the moving speed of the mobile station for a predetermined time; see fig.6 and col. 9 lines 14-30)* in a propagation path condition (*col. 7 lines 51-60)*;

changing *(channel selection; 24)* a method of estimating communication quality of a received signal, based on the speed of the change in the propagation path condition *(col. 7 lines 64 to col. 8 lines 3)*, to estimate communication quality *(quality estimation section; 27;col. 8 lines 4-8 and fig.4 shows the structure of the quality estimation section)*, and transmitting *(Tx;29)* information of the estimated communication quality and information of the estimated speed of the change in the propagation path condition to a transmitting side *(the estimated quality signal is combined with signal combining section (280) and is transmitted using transmitter (29) to the base station; col. 8 lines 45-51)*; receiving the information of the estimated communication quality and the information of the estimated speed of the change in the propagation path condition, both transmitted from the receiving side *(the estimated quality signal is combined with signal combining section (280) and is transmitted using transmitter (29) to the base station; col. 8 lines 45-51)*, does not teach a threshold setting section that sets a criterion for selecting, from a plurality of modulation schemes, select a modulation scheme for use in communication with a communicating party based on estimated of the speed of the change in the propagation path condition; a modulation scheme selection section that selects the modulation scheme from the estimated communication quality and the criterion; and a transmission section that

transmits the modulated data by a radio signal; receiving the modulated data transmitted from the transmitting side; demodulating the received modulated data.

In the same field of endeavor, however, Takano discloses a threshold setting section *(15c)* that sets a criterion *(col. 10 lines 48-57)* for selecting, from a plurality of modulation schemes (*64 QAM, 16QAM, QPSK);* a modulation scheme *(modulation-coding mode selection; 15*) of a signal to be transmitted to the receiving side *(col. 11 lines 7-18),* based on the received information of the estimated speed of the change in the propagation path condition *(col. 9 lines 11-18);*selecting (*15a)* the modulation scheme based on the set criterion and the received information of the estimated speed communication quality of a signal *(col. 10 lines 32-39)*; modulating (*17)* data the selected modulation scheme *(col. 8 lines 63 to col. 9 lines 1-18)*; a transmission section *(19)* the modulated data by a radio signal *(col. 9. lines 19-26);*receiving *(23)* the modulated data transmitted from the transmitting side *(19);* demodulating *(26)* the received modulated data *(col. 9 lines 63-67).*

Therefore, taking the combined teaching of Ishii and Takano as a whole would have been rendered obvious to one skilled in the art to modify Ishii to implement Takano's threshold setting section that sets a criterion to select a modulation scheme for use in communication with a communicating party from a plurality of modulation schemes based on information of the speed of the change in the propagation path condition; a modulation scheme selection section that selects a modulation scheme from the communication quality by the criterion set by the threshold setting section for the benefit of selecting modulation and coding mode at an optimal transmission rate

(col.5 lines 1-5, Takano).

Re claim 11, Ishii discloses a communication method comprising (fig.3):

Estimating *(communication path estimation section; 25)* that estimates a speed of a change (*based on the moving speed of the mobile station for a predetermined time; see fig.6 and col. 9 lines 14-30)* in a propagation path condition (*col. 7 lines 51-60)*;

changing *(channel selection; 24)* a method of estimating communication quality of a received signal, based on the speed of the change in the propagation path condition *(col. 7 lines 64 to col. 8 lines 3)*, to estimate communication quality *(quality estimation section; 27;col. 8 lines 4-8 and fig.4 shows the structure of the quality estimation section)*, and transmitting *(Tx;29)* information of the estimated communication quality and information of the estimated speed of the change in the propagation path condition to a transmitting side *(the estimated quality signal is combined with signal combining section (280) and is transmitted using transmitter (29) to the base station; col. 8 lines 45-51)*; receiving the information of the estimated communication quality and the information of the estimated speed of the change in the propagation path condition, both transmitted from the receiving side *(the estimated quality signal is combined with signal combining section (280) and is transmitted using transmitter (29) to the base station; col. 8 lines 45-51)*, does not teach a threshold setting section that sets a criterion for selecting, from a plurality of modulation schemes, select a modulation scheme for use in communication with a communicating party based on estimated of the speed of the change in the propagation path condition; a modulation scheme selection section that selects the modulation scheme from the

estimated communication quality and the criterion; and a transmission section that transmits the modulated data by a radio signal; receiving the modulated data.

In the same field of endeavor, however, Takano discloses a threshold setting section *(15c)* that sets a criterion *(col. 10 lines 48-57)* for selecting, from a plurality of modulation schemes (*64 QAM, 16QAM, QPSK);* a modulation scheme *(modulation-coding mode selection; 15*) of a signal to be transmitted to the receiving side *(col. 11 lines 7-18),* based on the received information of the estimated speed of the change in the propagation path condition *(col. 9 lines 11-18);*selecting (*15a)* the modulation scheme based on the set criterion and the received information of the estimated speed communication quality of a signal *(col. 10 lines 32-39)*; modulating (*17)* data the selected modulation scheme *(col. 8 lines 63 to col. 9 lines 1-18)*; transmitting *(19)* the modulated data by a radio signal *(col. 9. lines 19-26);*receiving *(23)* the modulated data transmitted from the transmitting side *(19);* demodulating *(26)* the received modulated data *(col. 9 lines 63-67).*

Therefore, taking the combined teaching of Ishii and Takano as a whole would have been rendered obvious to one skilled in the art to modify Ishii to implement Takano's threshold setting section that sets a criterion to select a modulation scheme for use in communication with a communicating party from a plurality of modulation schemes based on information of the speed of the change in the propagation path condition; a modulation scheme selection section that selects a modulation scheme from the communication quality by the criterion set by the threshold setting section for the benefit of selecting modulation and coding mode at an optimal transmission rate

(col.5 lines 1-5, Takano).

Allowable Subject Matter

10. Claims 4-6,9 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

11. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rahel Guarino whose telephone number is (571)270-1198. The examiner can normally be reached on M-F (7:30-4:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Payne David can be reached on 571-272-3024. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Rahel Guarino/
Examiner, Art Unit 2611

/David C. Payne/

Supervisory Patent Examiner, Art Unit 2611